

REMARKS

This letter is responsive to the office action dated March 27, 2002. Claims 34-54 remain in this application. Claims 34, 41, and 48 have been amended. The Applicants respectfully submit that each of claims 34-54 is in condition for allowance.

Objection re: Specification

In paragraph 2 of the office action, the Examiner has objected to the specification, indicating that a related application is disclosed but not specified under a separate heading, with reference to 37 CFR 1.78 and MPEP § 201.11. The Applicants respectfully submit that the above-referenced sections would apply to applications in which benefit of the filing date of an earlier-filed application is being sought. The Applicants have not claimed the benefit of the filing date of the pending application identified at page 5 line 11 (as serial no. 09/323,680 by Applicants' amendment dated June 27, 2001) of the subject specification. Instead, the pending application was disclosed to allow the Applicants to incorporate its contents by reference into the subject application. Accordingly, the Applicants respectfully request withdrawal of this objection.

§ 112 First Paragraph rejection

In paragraph 4 of the office action, the Examiner has rejected claims 39, 46, and 53 under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. More specifically, the Examiner states that while the specification is enabling for financial instruments, he contends that the specification does not appear to be enabling for "non-financial" instruments.

The Applicants respectfully submit that the specification is enabling for both financial and non-financial instruments to persons skilled in the art. The preferred embodiment of the invention is described with reference to a portfolio of *instruments*. As indicated at page 1 lines 22-24 of the specification, *instruments* can include various financial instruments and non-financial instruments. While certain aspects of the invention as described in accordance with the preferred embodiment have been explained with reference to specific examples of financial instruments, it is not the intention of the Applicants to limit the scope of the claims to these examples. The Applicants submit that it would be well understood by someone skilled in the art how the invention applies to both financial and non-financial instruments from the specification, for the reasons provided below.

At page 4 lines 20-24 of the specification, the Applicants state that "each dynamic portfolio can have the quantities of the instruments in the portfolio increased or decreased, including the total removal of instruments from the portfolio and/or the addition of new instruments to the portfolio thus changing the composition of the

portfolio. Trading strategies are defined by a user to define how the dynamic portfolio should evolve and one or more Trade Managers implement these strategies". Accordingly, trading strategies and dynamic portfolios are linked to changing *quantities* of instruments, which can be performed with respect to both financial instruments and non-financial instruments. For instance, the Applicants submit that persons skilled in the art may view balance sheets as representing a "portfolio" of assets and liabilities. Some of the assets and liabilities are directly related to financial instruments (e.g. loans, mortgages, equity investments, etc.) while some are not (e.g. real estate, inventory, accounts receivables, etc.). Those skilled in the art will understand that trading strategies can be used not only to change quantities of traded financial instruments (which may be referred to as "position sizes" in this context), but also to change the quantities of non-financial instruments (e.g. changing the "quantity" of real estate or the "quantity" of inventory) for such a portfolio.

As a further example, at page 8 lines 11-18 and at various other parts of the specification, the invention in a preferred embodiment is described, in the context of a simulation under a number of possible future scenarios, as performing simulated purchases and sales of instruments, which change the quantities (i.e. positions) of those instruments in the dynamic portfolio. The applicants submit that it would be well understood by persons skilled in the art that the purchase and sale of instruments can be performed both on financial instruments and non-financial instruments, and that the specification provides an enabling disclosure of the invention as it applies to both types of instruments.

The Applicants respectfully traverse the Examiner's rejection of claims 39, 46, and 53, and submits that an enabling disclosure of the invention as defined in these claims is provided for in the specification. Accordingly, the Applicants respectfully submit that each of these claims is in condition for allowance.

§ 112 Second Paragraph rejection

In paragraph 6 of the office action, the Examiner has rejected claim 34 under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. More specifically, the Examiner indicated that in subparagraph "ii" of paragraph "d", there is recited the substep of changing the dynamic portfolio which appears no longer to be part of a simulation. In response, the Applicants have amended claim 34 to more clearly define the invention. No new matter is introduced by these amendments.

Paragraph "d" of Claim 34 has been amended to more clearly specify that the step of executing a simulation comprises the substeps recited in subparagraphs "i" through "iv". Furthermore, subparagraph "ii" of paragraph "d" has been amended to recite a substep of simulating changes to a dynamic portfolio, to clarify that the substep is part of the simulation. Support for this amendment can be found at page 3 line 21, and page 10 lines 28-29, for example.

Accordingly, the Applicants submit that claim 34 as amended is not indefinite, and respectfully traverse the Examiner's § 112 rejection of Claim 34.

§ 103(a) rejection

In paragraph 8 of the office action, the Examiner has rejected claims 34-54 under 35 USC § 103(a) as being unpatentable over **French** in view of **Melnikoff**. The Applicants respectfully submit that the claims, as amended, are patentable over the cited art for the reasons provided below.

French discloses a system where three or more automated computerized processes ("agents") are created, each to maintain its own actual "portfolio" of investments that are acquired by the agent according to certain specified characteristics. After a period of time has elapsed, the system evaluates the performance of each agent over the elapsed time, and can eliminate agents that have underperformed and create new agents if desired.

The Applicants submit that persons skilled in the art would clearly understand that **French** teaches a system that invests "real" money to acquire "real" investments over "real" intervals of time. For example, it is clear from the Applicants' description at column 7 lines 8-10, that actual trading transactions to be executed by the system are contemplated. As a further example, at column 3 lines 16-20 of the **French** reference, **French** describes the system as one that "adapts and refines its operation based on *current* market conditions and past performance". The basis upon which investments are acquired depends on market conditions that have actually transpired over elapsed periods of time. More specifically, the agents in **French** take a specific action (e.g. notifying an operator, or performing real transactions such as buying or selling an investment) when a trigger event has actually occurred. Nowhere in **French** is it taught or suggested that the agents operate on the basis of *simulated* market conditions that have yet to occur. Similarly, **French** neither teaches nor suggests that the agents operate under different future scenarios, or that their performance is to be analyzed based on what possible scenarios they may encounter rather than strictly on what events actually transpire. Accordingly, it is submitted that those persons skilled in the art would not understand **French** to describe a system based on scenario-based *simulation*, nor would they understand **French** to teach the use of a *simulated* portfolio of instruments.

Melnikoff discloses a method of measuring the returns and risks of individual mutual funds, and optionally, of portfolios thereof, to allow investors to more easily choose between desirable mutual funds. In essence, the method disclosed in **Melnikoff** involves the calculation of the underperformance ("shortfall") of a mutual fund relative to a benchmark instrument over a pre-determined *historical* period as a measure of risk associated with that mutual fund. Data values used in the calculation of a portfolio's performance are historic and static, and are not based on values obtained in a *simulation* where portfolio performance is analyzed under different possible future scenarios. Accordingly, it is submitted that persons skilled in the art would not

understand **Melnikoff** to describe a method based on scenario-based *simulation*, nor would they understand **Melnikoff** to teach the use of a *simulated* portfolio of instruments.

The Applicants submit that the terms “simulation” and “simulating” would be well understood by persons skilled in the art to which this invention pertains to relate to acts of “imitation or representation, as of a potential situation or in experimental testing” (see e.g. The American Heritage Dictionary of the English Language, Fourth Edition). Simulating or modeling the evolution of a portfolio under different possible future scenarios allows users of the invention to better assess future risk associated with the portfolio. For example, through the use of simulation, a user can analyze different potential trading strategies under a variety of market conditions, such as strategies that define which types of instruments to divest from and which types of instruments to invest in under various possible future scenarios (see e.g. p. 2 line 28 to p. 3 line 2, and p. 12 lines 9 to 13 of the Applicants’ description). The desirability of specific trading strategies can be assessed before they are actually implemented (i.e. in the real world), which provides advantages in risk management applications.

In contrast, **French** discloses the use of agents that acquire and sell investments of an actual portfolio according to certain specified characteristics. While the act of defining characteristics in **French** might be considered to be akin to defining “trading strategies”, the performance and desirability of specific “trading strategies” in **French** are only assessed in hindsight. **French** does not teach the modeling or simulation of portfolios under future scenarios that might allow a proposed trading strategy to be rejected before it is actually applied. **French** does not teach the use of simulated portfolios that might allow measures of risk associated with a portfolio or a proposed transaction involving the portfolio to be evaluated before the associated risk materializes, unlike the present invention (see e.g. p. 5 line 28 to p. 6 line 1 of the Applicants’ description). Accordingly, the Applicants submit that the system in **French** differs from the invention in that **French** works in a substantially different way to produce different results, and that it would not be obvious to persons skilled in the art to arrive at the invention in view of **French**.

Similarly, the Applicants submit that even if **French** were to be viewed in combination with **Melnikoff**, the invention would not be obvious to persons skilled in the art as the two references considered in combination neither teach the modeling or simulation of portfolios under future scenarios that might allow a proposed trading strategy to be rejected before it is actually applied, nor do they teach the use of simulated portfolios that might allow measures of risk associated with a portfolio or a proposed transaction involving the portfolio to be evaluated before the associated risk materializes, unlike the present invention.

For greater clarity in view of the above, independent claims 34, 41, and 48 have been amended to clarify that the dynamic portfolio is a simulated dynamic portfolio, and that changes to the composition of the simulated dynamic portfolio are made under a plurality of possible future scenarios at a plurality of future time steps.

Furthermore, as indicated earlier in response to the Examiner's § 112 Second Paragraph rejection, independent claim 34 has also been amended to clarify that changes made to the dynamic portfolio are simulated changes. No new matter has been added, since there is ample support for this additional claim language in the specification (see e.g., p. 3 line 21, p. 10 lines 28-29 of the Applicants' description).

Claims 34 and 48 have also been amended to clarify that the risk metric produced can be dependent on one or more simulated dynamic portfolios. Support for this amendment can be found at page 11 lines 23-25 of the Applicants' description.

Accordingly, the Applicants respectfully submit that independent claims 34, 41, and 48, as amended, are patentable and would not be obvious to a person skilled in the art in view of the cited art. It is further submitted that dependent claims 35-40, dependent claims 42-47, and dependent claims 49-54 which remain in the application and depend on amended independent claims 34, 41, and 48 respectfully are also patentable, for the reasons provided above with respect to the amended independent claims. Withdrawal of the Examiner's rejection is respectfully requested.

The specification has also been amended at page 6 lines 26-27 to correct for clerical error. For example, Tracked Attribute list 168 is now referred to as "Tracking Attribute list 168" as referenced in other parts of the specification (e.g. page 7, lines 17 and 22) and in the Figures (e.g. Figures 3 and 4). Claims 34, 41, and 48 have also been amended to make reference to a "tracking attribute" instead of a "tracked attribute" for consistency. No new matter has been added by these amendments.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

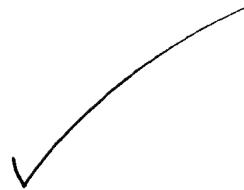
All objections and rejections have been addressed. It is respectfully submitted, therefore, that the present application is now in position for allowance, and a Notice to that effect is earnestly solicited. If the Examiner believes that a telephone interview would expedite allowance of the application, he is respectfully requested to contact the undersigned.

Respectfully submitted,

Bereskin & Parr

By


H. Sam Frost
Registration No. 31,696
(416) 364-7311



VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

Paragraph beginning at line 26 of page 6 has been amended as follows:

Figure 3 shows a Trade Manager manager 128 in more detail. As shown, each Trade Manager 128 includes a Rule structure 160, a Tracked Position list 164, a ~~Tracked~~ Tracking Attribute list 168, a Target Vector 172, a Trade Position list 176 and a Funding Position list 180, each of which is described in further detail below.

In the claims:

Amend claim 34 as follows:

34. A method of determining the risk associated with a user's portfolio by simulating changes to the composition of a simulated dynamic portfolio under a plurality of possible future scenarios at a plurality of future time steps, the user's portfolio comprising a plurality of instruments, said method comprising the steps of

- (a) generating a simulated dynamic portfolio, said simulated dynamic portfolio comprising a plurality of instruments and having an initial composition that is identical to the composition of the user's portfolio;
- (b) defining at least one rule for use in a simulation in which changes are to be made to the composition of said simulated dynamic portfolio are to be simulated, wherein said defining step is performed prior to executing said simulation, and wherein said at least one rule is dependent on at least one tracked tracking attribute, on at least one tracking position, and on at least one trade position;
- (c) selecting one of said plurality of possible future scenarios under which said simulation is to be performed;
- (d) executing a simulation under the possible future scenario selected in step (c) at said plurality of future time steps, wherein the current time step is initially the first time step of said plurality of future time steps, and wherein the step of executing said simulation comprises the following substeps are to be performed on the simulated dynamic portfolio generated at step (a):

i. valuing said simulated dynamic portfolio at the current time step of said plurality of future time steps, wherein a model for each instrument in said simulated dynamic portfolio is evaluated;

ii. changing simulating changes to said simulated dynamic portfolio by evaluating said at least one rule to produce a changed simulated dynamic portfolio, wherein said changes are dependent on the value of said at least one tracked attribute at the current time step, and wherein said simulated dynamic portfolio becomes said changed simulated dynamic portfolio after said changed simulated dynamic portfolio is produced;

iii. setting the current time step to the next time step of said plurality of future time steps and repeating substeps (i) and (ii);

iv. repeating substep (iii) until said simulated dynamic portfolio has been valued at all of said plurality of future time steps;

(e) repeating steps (c) and (d) for each remaining possible future scenario of said plurality of possible future scenarios; and

(f) producing an output risk metric for said dynamic portfolio, wherein said output risk metric is dependent on the composition of said one or more simulated dynamic portfolios after step (d) is performed under at least one of said plurality of possible future scenarios.

Amend claim 41 as follows:

41. A simulated dynamic portfolio of instruments for use with a risk management system in a simulation, the composition of said simulated dynamic portfolio being changeable under a plurality of possible future scenarios at a plurality of future time steps, said simulated dynamic portfolio comprising:

(a) a holding structure indicating instruments and their quantity in said simulated dynamic portfolio; and

(b) a strategy structure indicating a trade manager in which at least one rule for a trading strategy is defined, wherein said at least one rule is dependent on at least one tracked tracking attribute, on at least one tracking position, and on at least one trade positions, wherein said at least one rule is defined prior to executing said simulation;

and wherein for each of said plurality of possible future scenarios at each of said plurality of future time steps, said at least one trade manager simulates changes to said simulated dynamic portfolio by evaluating said at least one rule to produce a changed simulated dynamic portfolio, wherein said changes are dependent on the value of said at least one tracked tracking attribute at the current time step, wherein said simulated dynamic portfolio becomes said changed simulated dynamic portfolio after said

changed simulated dynamic portfolio is produced, and wherein said changes to said simulated dynamic portfolio are reflected in said holding structure.

Amend claim 48 as follows:

48. A risk management system operable on a plurality of instruments, said system comprising:

(a) at least one risk engine adapted to determine a risk value for each instrument of said plurality of instruments, said risk value determined by evaluating a model for said instrument under one of a plurality of possible future scenarios;

(b) a database to store risk values of said plurality of instruments;

(c) a simulated dynamic portfolio of instruments, the composition of said simulated dynamic portfolio being changeable under said plurality of possible future scenarios at a plurality of future time steps, said simulated dynamic portfolio comprising a holding structure indicating instruments and their quantity in said simulated dynamic portfolio and a strategy structure indicating a trade manager in which at least one rule for a trading strategy is defined, wherein said at least one rule is dependent on at least one tracked tracking attribute, on at least one tracking position, and on at least one trade positions, wherein said at least one rule is defined prior to executing said simulation, wherein for each of said plurality of possible future scenarios at each of said plurality of future time steps, said at least one trade manager simulates changes to said simulated dynamic portfolio by evaluating said at least one rule to produce a changed simulated dynamic portfolio, wherein said changes are dependent on the value of said at least one tracked tracking attribute at the current time step, wherein said simulated dynamic portfolio becomes said changed simulated dynamic portfolio after said changed simulated dynamic portfolio is produced, and wherein said changes to said simulated dynamic portfolio are reflected in said holding structure; and

(d) an aggregating engine adapted to retrieve said determined risk values to produce a risk metric corresponding to dependent on the composition of said one or more dynamic portfolios under at least one of said plurality of possible future scenarios.